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EXAMINER	
SHINGLES, KRISTIE D	

ART UNIT	PAPER NUMBER
2141	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/991,339	ROLIA, JEROME	
	Examiner	Art Unit	
	Kristie Shingles	2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant has amended claims 1, 12, 20 and 31.
Claims 1-35 are pending.

Response to Arguments

Applicant's arguments filed 5/10/2005 have been fully considered but they are not persuasive.

I. Applicant argues (see Remarks, page 14), in substance, that the cited prior art of record, *Friedrich et al* (USPN 6,003,079) fails to teach the determination of demand values calculated from throughput and utilization metrics.

II. Examiner respectfully disagrees.

In the previous Office Action, in the rejection of claim 8, which states, "...said plurality of metric values includes throughput metrics and utilization metrics"; the Examiner indicated and referenced column 8 lines 18-27 and 55-67 of *Friedrich et al*, which clearly teach determinations based on the values of throughput and utilization calculations. Furthermore, the Abstract along with Tables 1 and 2 of *Friedrich et al* also support throughput and utilization metrics captured by sensors for monitoring and measuring the QoS performance. Thus, Applicant's arguments are non-persuasive and the rejection under *Friedrich et al* is maintained.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims **1-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Friedrich et al* (USPN 6,003,079) in view of *Zinky et al* (USPN 6,691,148).

a. **Per claim 1**, *Friedrich et al* teach the method of resource allocation comprising:

a) calculating a plurality of demand values for a plurality of components, wherein said plurality of demand values is calculated from a combination of throughput and utilization metrics (col.4 line 35-col.5 line 45, col.6 lines 8-26, Tables 1 and 2, col.8 lines 14-62, col.11 lines 4-55);

b) predicting a plurality of response time metrics for said plurality of components based on said plurality of demand values (col.9 lines 5-10);

c) modeling said plurality of components based on an objective function in response to said plurality of response time metrics to determine a new effective distribution of computational resources throughout said plurality of components (col.11 lines 4-31); and

Yet *Friedrich et al* fail to explicitly teach allocating computational resources throughout said plurality of components to reflect said new effective distribution. Although *Friedrich et al* does teach if a report from the managed method is processing too many arrivals, then the quality-of-service (QoS) expectations are changed (col.10 lines 55-58). Such suggestion would motivate one of ordinary skill in the art to seek a practical and effective way of doing so. Nevertheless, *Zinky et al* teaches allocation of system resources to changing resources

availability whenever the system detects a transition (col.6 lines 26-35), which can be interpreted as allocating resources to reflect a new effective distribution.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Friedrich et al* and *Zinky et al* for the purpose of incorporate allocating resource to detect a transition into a system that continuously measures QoS in a federated application environment, in order to assure QoS provided by a distributed network having at least one object.

b. **Per claim 2,** *Friedrich et al* and *Zinky et al* teach the method of claim 1, *Friedrich et al* further teaches the method wherein said plurality of components comprise an application environment (col.1lines 36-41).

c. **Per claim 3,** *Friedrich et al* and *Zinky et al* teach the method of claim 1, *Friedrich et al* further teaches the method wherein c) further comprises: comparing a response time metric in said plurality of response time metrics to a service level objective (col.10 lines 53-67, col.11 lines 1-31); and modeling said plurality of components when said service level objective is not satisfied (col.10 lines 53-67, col.11 lines 1-31).

d. **Per claim 4,** *Friedrich et al* and *Zinky et al* teach the method of claim 3, *Friedrich et al* further teaches the method wherein said service level objective applies to said plurality of components on a system-wide basis (col.9 lines 31-39 and 51-57, col.11 lines 10-31, col.11 line 65-col.12 line 7).

e. **Per claim 5,** *Friedrich et al* and *Zinky et al* teach the method of claim 3, *Friedrich et al* further teaches the method wherein said service level objective applies to said plurality of components on a subsystem basis (col.9 lines 40-50, col.11 lines 10-31 and 42-55).

f. **Per claim 6,** *Friedrich et al* and *Zinky et al* teach the method of claim 3, *Friedrich et al* further teaches the method wherein said service level objective applies to one of said plurality of components (col.11 lines 10-31).

g. **Per claim 7,** *Friedrich et al* and *Zinky et al* teach the method of claim 1, *Friedrich et al* further teaches the method wherein a) further comprises: receiving a plurality of metric values from said plurality of components, said plurality of metric values used to calculate said demand values (col.6 lines 12-26, col.8 lines 18-67, col.9 lines 12-20).

h. **Per claim 8,** *Friedrich et al* and *Zinky et al* teach the method of claim 1, *Friedrich et al* further teaches the method wherein said plurality of metric values includes throughput metrics and utilization metrics (col.8 lines 18-27 and 55-62).

i. **Per claim 9,** *Friedrich et al* and *Zinky et al* teach the method of claim 1, *Friedrich et al* further teaches the method wherein c) comprises: inputting said plurality of demand values into a predictive model to determine said new effective distribution of computational resources (col.11 lines 4-31).

j. **Per claim 10,** *Friedrich et al* and *Zinky et al* teach the method of claim 1, *Zinky et al* further teaches the method wherein d) comprises: removing computational resources from said plurality of components (col.6 lines 26-35; modifying resources and changing resource availability). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Friedrich et al* and *Zinky et al* to remove computational resources, in order to give the client application an opportunity and the ability to change its operating behavior in accordance with the improved QoS.

k. **Per claim 11,** *Friedrich et al* and *Zinky et al* teach the method of claim 1, *Zinky et al* further teaches the method wherein d) comprises: adding computational resources from said plurality of components (col.6 lines 26-35; modifying resources and changing resource availability). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Friedrich et al* and *Zinky et al* to add computational resources, in order to give the client application an opportunity to observe an increased QoS and to modify its behavior accordingly.

l. **Per claim 12,** *Friedrich et al* teach a method of resource allocation in an application environment comprising:

a) receiving a plurality of metric values from a plurality of components of said application environment (col.1 lines 36-41, col.8 lines 18-67, col.9 lines 12-20);

b) calculating a plurality of demand values from said plurality of metric values, wherein said plurality of demand values is calculated from a combination of throughput and utilization metrics (col.6 lines 12-26, col.8 lines 14-67, col.9 lines 12-20, Tables 1 and 2, col.11 lines 4-55);

c) predicting a plurality of response time metrics for each of said plurality of components based on said plurality of demand values (col.9 lines 5-10);

d) modeling said plurality of components based on an objective function in response to said plurality of response time metrics to determine a new effective distribution of computational resources for said plurality of components (col.11 lines 4-31).

Yet *Friedrich et al* fail to explicitly teach allocating computational resources throughout said plurality of components to reflect said new effective distribution. Although *Friedrich et al* does teach if a report from the managed method is processing too many arrivals, then the quality-of-service (QoS) expectations are changed (col.10 lines 55-58); and optimization

techniques used to minimize the required processing and network utilization overhead and improve overall scalability to reflect the optimum number (col.5 lines 31-36). Such suggestion would motivate one of ordinary skill in the art to seek a practical and effective way of doing so. Nevertheless, *Zinky et al* teaches allocation of system resources to changing resources availability whenever the system detects a transition (col.6 lines 26-35), which can be interpreted as allocating resources to reflect a new effective distribution.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Friedrich et al* and *Zinky et al* for the purpose of incorporate allocating resource to detect a transition into a system that continuously measures QoS in a federated application environment, in order to determine the optimum number of computational resources and assure the QoS provided by a distributed network having at least one object.

m. **Per claim 13,** *Friedrich et al* and *Zinky et al* teach the method of claim 12, *Friedrich et al* further teaches the method wherein d) comprises: modeling said plurality of components in response to said plurality of response time metrics when a service level objective is not satisfied (col.10 lines 53-67, col.11 lines 1-31).

n. **Per claim 14,** *Friedrich et al* and *Zinky et al* teach the method of claim 12, *Friedrich et al* further teaches the method wherein d) further comprises: determining a plurality of optimum numbers of computational resources, one for each of said plurality of components, that represents said new effective distribution of computational resources (col.4 lines 48-53, col.5 lines 31-36, col.10 lines 55-58).

o. **Claim 15** is substantially similar to claim 10 and is therefore rejected under the same basis.

p. **Claim 16** is substantially similar to claim 11 and is therefore rejected under the same basis.

q. **Per claim 17,** *Friedrich et al* and *Zinky et al* teach the method of claim 12, *Friedrich et al* further teaches the method wherein c) comprises: predicting said plurality of response time metrics using a prediction modeling technique (col.9 lines 5-10).

r. **Claim 18** is substantially similar to claim 8 and is therefore rejected under the same basis.

s. **Per claim 19,** *Friedrich et al* and *Zinky et al* teach the method of claim 12, *Friedrich et al* further teaches the method wherein c) comprises: inputting said plurality of demand values into a predictive model to determine said optimum number (col.11 lines 4-31, col.5 lines 31-36).

t. **Claims 20-30** list all of the same elements of claim 1-11, respectively, differing only in statutory class (system form rather method form). Therefore, claims 20-30 are substantially equivalent to claims 1-11, respectively, and are therefore rejected under the same basis.

u. **Per claim 31,** *Friedrich et al* teach a communication network comprising:

- a plurality of computational resources (col.1 lines 21-25);
- an application environment having a plurality of network nodes coupled together (col.1 lines 21-25);
- a plurality of components in said application environment servicing an application, each of said plurality of components including at least one computational resource from said plurality of computational resources, each

of said plurality of components residing on one of said plurality of network nodes (col.4 lines 15-27);

- a plurality of metrics measured at each of said plurality of components for calculating a plurality of demand values (col.6 lines 12-26, col.8 lines 18-67, col.9 lines 12-20);

- a functional objective for defining an optimum number of computational resources in said application environment (col.4 lines 48-53, col.5 lines 31-36, col.10 lines 55-58).

Yet *Friedrich et al* fails to explicitly teach a dynamic resource manager coupled to said application environment for determining a new effective distribution of computational resources throughout each of said plurality of components in response to said plurality of demand values in order to satisfy said functional objective. Although *Friedrich et al* does teach if a report from the managed method is processing too many arrivals, then the quality-of-service (QoS) expectations are changed (col.10 lines 55-58); and optimization techniques used to minimize the required processing and network utilization overhead and improve overall scalability to reflect the optimum number (col.5 lines 31-36). Such suggestion would motivate one of ordinary skill in the art to seek a practical and effective way of doing so. Nevertheless, *Zinky et al* teaches allocation of system resources to changing resources availability whenever the system detects a transition in order to satisfy the QoS (col.6 lines 26-35), which can be interpreted as allocating resources to reflect a new effective distribution.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Friedrich et al* and *Zinky et al* for the purpose of incorporate allocating resource to detect a transition into a system that continuously measures QoS in a federated application environment, in order to determine the optimum number

of computational resources and satisfy the QoS provided by a distributed network having at least one object.

v. **Claim 32** is substantially similar to claim 8 and is therefore rejected under the same basis.

w. **Per claim 33,** *Friedrich et al* and *Zinky et al* teach the network of claim 31, *Friedrich et al* further teaches the network further comprising: a prediction model for predicting a plurality of response time metrics for said plurality of components based on said plurality of demand values (col.9 lines 5-10); and a mathematical model for modeling said plurality of components in response to said plurality of response time metrics for determining said new effective distribution of computational resources (col.11 lines 4-31).

x. **Claim 34** is substantially similar to claims 10 and 11 and is therefore rejected under the same basis.

y. **Per claim 35,** *Friedrich et al* and *Zinky et al* teach the network of claim 31, *Zinky et al* further teaches the network wherein said plurality of components comprise a local area network (LAN) (col.2 lines 3-9).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: *Tummalapalli* (USPN 6,804,714), *Lumelsky et al* (USPN 6,460,082), *Farber et al* (USPN 6,185,598), *Combs et al* (USPN 6,665,701), *Sheets et al* (USPN 6,816,905), *Farber et al* (USPN 6,654,807).

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristie Shingles whose telephone number is 571-272-3888. The examiner can normally be reached on Monday-Friday 8:30-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kristie Shingles
Examiner
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kds

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